SB 630845

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TOYOTA

Technical Service BULLETIN

March 1, 2002

Title:

M.I.L. "ON," ENGINE MISFIRE P0300/01/02/03/04

Models:

'01 Prius

TSB

ENGINE

EG006-02

TSB Update Notice:

The information contained in this TSB updates EG007–01 dated May 18, 2001. Revised text is red and underlined.

Introduction

Some 2001 model year Prius vehicles may exhibit a M.I.L. "ON" condition with Diagnostic Trouble Codes P0300, P0301, P0302, P0303, P0304 stored in the Engine ECU. Use the following procedure to diagnose and correct this condition.

Applicable Vehicles

- **2001** model year **Prius** vehicles.

Parts Information

PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME
23209–21020	23209–21030	Fuel Injector Assembly
23291–41010	Same	Injector Vibration Insulators
13751–220##	Same	Valve Lifter
11213–21011	Same	Cylinder Head Cover Gasket
89661–47030 89661–47031 89661–47050	89661–47051	Engine Control Module (ECM)

Required Tools & Material

TOOLS & MATERIALS
Standard Metric Socket Set & Hand Tools

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
EG1002	Fuel Injector Assembly R & R (All), R & R Engine ECM and Valve Clearance Inspection	3.2	23209–21020	04	99
Combo A	Valve Clearance Adjustment	4.7			
895011	Engine Control Module	0.4	89661–470##		

Engine Control Module (ECM) Applicable Warranty*:

This repair is covered under the Toyota Federal Emission Components Warranty. This warranty is in effect for 96 months or 80,000 miles, whichever occurs first, from the vehicle's in-service date.

* Warranty application is limited to correction of a problem based upon a customer's specific complaint.

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Repair Procedure Use the following procedure to isolate the cause for the misfire condition.

1	**Check and record the DTC & Freeze Frame data.**

CHECK:

- Check and record the data from the Engine ECU with the IG Key "ON."

Go

Perform the following operations after cold soaking the engine.

2	**Valve clearance inspection.**

CHECK:

- Check the valve clearance and **record the actual measurement for each valve.** Pay particular attention to any suspect cylinder after reviewing the recorded DTC and Freeze Frame data.
- Follow the valve clearance procedure per the Prius Repair Manual instructions, Volume 2, page EM–5. Start the inspection with the smallest feeler gage. A gage that is too thick can compress the valve spring stem and produce incorrect results.

NOTE:
Do not use GO–NO–GO gages. Record the actual clearance for each valve. Valves measured AT or BELOW the minimum specification must be adjusted. See step 9.

- Valve clearance specifications: (cold)
  Intake 0.17 – 0.23 mm (0.007 – 0.009 in.)
  Exhaust 0.27 – 0.33 mm (0.011 – 0.013 in.)

Go

3	**Check for a misfiring condition using the Toyota hand–held tester misfire counter.**

A. Connect the Toyota hand–held Tester to DLC 3 connector.

B. Insure the selector lever is in "P" range and the parking brake is "ON."

C. Turn the IG key to "ON" and set the misfire counter in the Engine ECU. (Select ENG & ECT, Current Data, Data List, Misfire).

D. Turn IG Key to "ST" and wait 10 seconds to stabilize the engine rpm.

E. Observe the misfire counter until the engine stops after a complete warm–up. Check if any particular cylinder has a misfire indication. Note the misfire percent indication (see Figure 1).

F. After the engine stops, depress the accelerator to WOT and check the misfire counter for about 5 minutes (see Figure 1).

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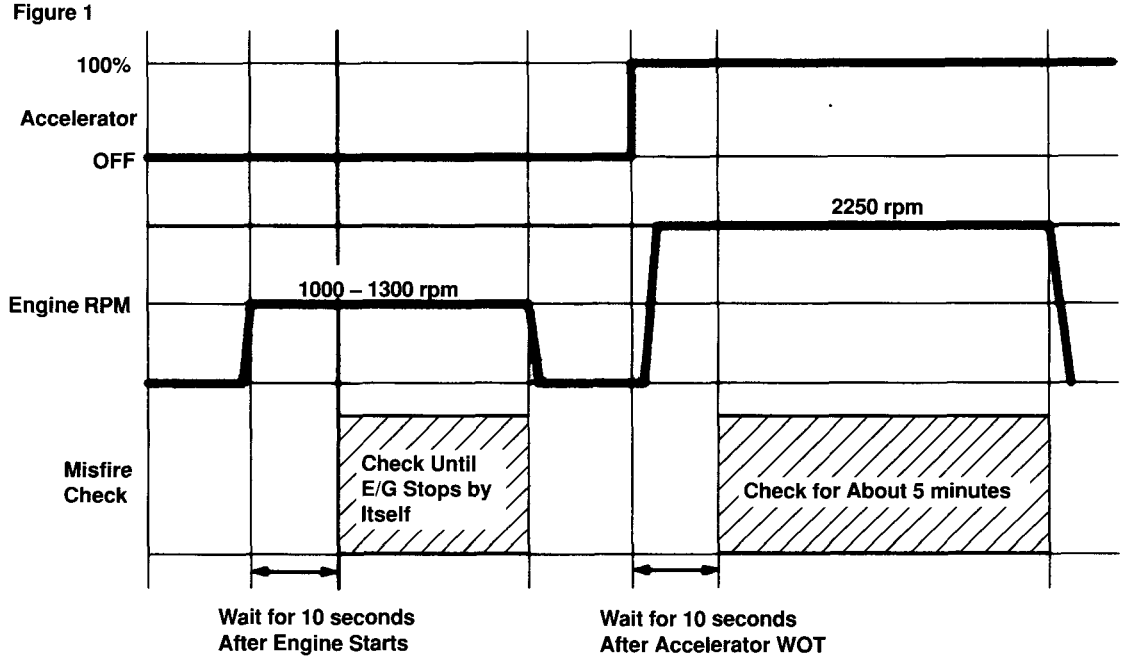
Repair Procedure (Continued)

Figure 1



CHECK:

- Does misfire counter show any value frequently or continuously?

Yes

No **Go to step 8.**

4	**Verify misfiring cylinder.**

CHECK:

- Is there any particular cylinder misfire indication?

Yes

No **Go to step 8.**

5	**Misfire isolation (1).**

Swap the igniter, fuel injector and spark plug between the indicated and a non–indicating cylinder. Repeat the misfire check as in step 3. If misfiring condition was observed during warm–up, perform this inspection after a cold soak.

CHECK:

- Does misfire indication transfer after moving parts?

Yes

No **Go to step 8.**

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Repair Procedure (Continued)

6	**Misfire isolation (2).**

Swap the igniter and spark plug between the indicated cylinder and a non–indicating cylinder. Repeat the misfire check as in step 3. If misfiring condition was observed during warm–up, perform this inspection after a cold soak.

CHECK:

- Does misfire indication transfer after moving parts?

Yes

No **Go to step 9.**

7	**Misfire isolation (3).**

Swap the igniter between the indicated cylinder and a non–indicating cylinder. Repeat the misfire check as in step 3. If misfiring condition was observed during warm–up, perform this inspection after a cold soak.

CHECK:

- Does misfire indication transfer after moving the part?

No

Yes **Replace the igniter.**

Replace the spark plug.

8	**Inspect wire harness (W/H), connector, vacuum hose, Engine ECU voltage, injector, air flow meter and coolant temp. sensor.**

Perform the trouble shooting inspection of related components, as per steps 1, 3, 4, 5 and 7, on DI–67 in the Prius Repair Manual, Volume 1.

CHECK:

- Any abnormal conditions found?

No

Yes **Repair failed part.**

9	**Replace the fuel injectors, Engine ECM and adjust valve clearances that are on or below the minimum specification.**

- Replace all fuel injectors and insulators with listed part numbers per the instructions in the Prius Repair Manual, Volume 2, SF–11 & SF–14.
- Replace the Engine Control Module per the instructions in the Prius Repair Manual, Volume 2, SF–62 & SF–63.
- Adjust any valve clearance that was measured out of specification or at the low end of the respective specification.
- Ensure that the final measured clearance is towards the high–end of specification.
- Follow the valve clearance adjustment procedure per the Prius Repair Manual instructions, Volume 2, EM–6.